

ClarIDy HF RFID USB Reader User's Manual

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ClarIDy Solutions, Inc.





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Change Log

Revision	Date	Author	Description
A.1	2008.07.21.	Andy Chen	Create the ClarIDy HF RFID Demo Program User's
			Manual.
A.2	2008.08.15.	Horng-Ji Chen	Change the control panel and add NFC file transfer
			functions.



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1. Introduction

This document describes the demo program (ClarIDy_HF_Demo.exe) for ClarIDy HF RFID Reader. The demo program provides configuration controls, "Inventory", "Block Data", and "NFC" functions. User can use this application to control the ClarIDy HF RFID Reader to communicate with ISO14443A, ISO14443B, ISO15693, and Sony FeliCa RFID tags. ClarIDy HF RFID Reader also provides NFC (Near Field Communication" functions to have contactless file transfer capability. The operational procedures are described as the following chapters.

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2. Installation

2.1 Setup the USB Driver

First time using the ClarIDy's HF FRID Reader (USB Interface), you must install the driver (RFIDUSBDriver.exe).

Please directly connect the ClarIDy HF RFID Reader to the USB port of the computer, or use the UHF entension cable to connect both ClarIDy HF RFID Reader and the USB port of the computer. The Windows system will detect the ClarIDy HF RFID Reader as a new device and popup the device driver setup dialog. Please ignore and close it.

Execute the RFIDUSBDriver.exe step by step as the following figures:

- 1. Click "Next" from the "Installing RFID USB Driver" dialog, as figure 1.
- 2. Click "Next" while the "Destination Folder" was specified, as figure 2.
- 3. Click "Finish" to finalize the installation of the RFID USB device driver, as figure 3.
- 4. The console window will show the installation information, as figure 4.



Figure 1



🖇 Installing RFID USB Driver
Destination folder Select a destination folder where RFID USB Driver will be installed.
Setup will install files in the following folder.
If you would like to install RFID USB Driver into a different folder then click Browse and select another folder.
Destination folder
C:\Program Files\RFID\USB Driver Browse
Space required: 765.85KB
Space available: 21.50GB
- CreateInstall Free
Sack Next > Cancel

Figure 2



Figure 3







2.2 Setup the Demo Program

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Execute the Setup.exe step by step as the following figures:

- 1. Click "Next" from the "ClarIDy HF Setup" dialog, as figure 5.
- 2. Click "Next" while the "Select Installation Folder" was specified, as figure 6.
- 3. Click "Next" on the "Confirm Installation", as figure 7.
- 4. System will show the "Installing ClarIDy HF Demo" as figure 8. While the "Installation

Complete" was shown, click "Close" to finish the installation, as figure 9.





Figure 5.

🕼 ClarIDy_HF_Demo	
Select Installation Folder	
The installer will install ClarlDy_HF_Demo to the following folder. To install in this folder, click "Next". To install to a different folder, enter it belo Folder	ow or click "Browse".
C\Program Files\ClarlDy Solutions\ClarlDy HF Demo\	B <u>r</u> owse
	Disk Cost
Install ClarIDy_HF_Demo for yourself, or for anyone who uses this compu	iter:
C Just <u>m</u> e	
Cancel <back< td=""><td>Next></td></back<>	Next>



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Figure 9.



3. Demo Program Operation Guide

The following sections will describe the usage of the ClarIDy HF Demo application.

3.1 Configuration Control

The main form on the left hand side is the configuration control of the ClarIDy HF RFID Reader, as figure 10. User can use this form to configure the operational environment of the Reader.

Connect Type: USE	ClarIDy HF RFID-NFC Demo	
Port: 0 Baudrate: Image: Status Status Disconnected Connect Disconnect Model Image: Model Read Tag Type ISO 15693 Image: Status ISO 14443A Image: Status ISO 14443B Image: Status Image: Status	Connect Type: USE Port: 0 Baudrate: Status Disconnected Connect Disconnect Model Read Tag Type Read Type: VISO 15693 VISO 14443A Version	Inventory Block Data NFC Inventory Stop Clear

Figure 10. Configuration Control

The initial state of the Reader is "Disconnected". You can select the "USB" type and a port number such as "0" to open the USB port by clicking the "Connect" button. If the USB port opened successfully, then the "Status" will be changed to "Connected" and the version number will be shown, see figure 11. Also, user can select tag protocols that will be used to run the program. The reading speed will be faster for only one protocol is selected. Here we will only select "ISO 15693" type, we unchecked the "ISO 14443A", "ISO 14443B" and "FeLiCa" check boxes, figure 12.



ClarIDy HF	RFID-NFC Demo						
Connect	arIDy	Inventory Bloc	k Data NFC	Stop	Cl	ear	
Туре:	USB 👻						
Port:	0 🔹						
Baudrate:	-						
Status	Connected						
Connect	Disconnect						
Model	1						
Read Tag Ty	pe						
Read Type:	📝 ISO 15693						
	📝 ISO 14443A						
	📝 ISO 14443B						
	🔽 FeliCa						
Version							
1.5 07/31/2	008 21:59:07					2	



ClarIDy HF RFID-NFC Demo			
	Inventory Block Data NFC	Stop	r
Connect			
Type: USB 🗸			
Port: 0 🗸			
Baudrate:			
Status Connected			
Connect Disconnect			
Model 1			
Read Tag Type			
Read Type: 👿 ISO 15693			
🕅 ISO 14443A			
📃 ISO 14443B			
🔄 FeliCa			
Version 1.5 07/31/2008 21:59:07			





3.2 Inventory and Stop Controls

Place the "RFID tag in the RF field (less than 4 cm on top of the reader) of the ClarIDy HF RFID Reader. Click "Inventory" button to read the tag UID, see figure 13. The unique tag ID ("UID"), number of reads ("Count"), and protocol will be shown on the table. Click "Stop" button to stop it. You can clear the result by clicking the "Clear" button.

ClarIDy HF RFID-NFC Demo				- 0 X
clarIDv	Inventory Block Data NFC			
Advanced AFID Solutions	Inventory	Stop	Clear	
Connect	UID	Count Protocol		
Type: USB 👻	► E004010014A3086	5 65 ISO15693		
Port: 0 👻	*			
Baudrate:				
Status Connected				
Connect Disconnect				
Model 1				
Read Tag Type				
Read Type: 📝 ISO 15693				
ISO 14443A				
ISO 14443B				
C Letter				
Version				
1.5 07/51/2008 21:59:07				

Figure 13. Inventory, Stop and Clear Controls

3.3 Block Data Control

"Block Data" is used to read/write ISO15693 Tag's block data.

There are four options for ISO15693 Tag.

- > Normal: This is the default mode.
- Option Flag Enabled: If this has checked, the Option Flag (Bit 7) of the ISO 15693 defined Request Flags will be set to 1. Some tags Write commands that Option Flag must be set to 1. Ex: TI Tag.
- Secure: When password has been written into the tag, please checked the "Secure" and Input the Password to "PWD".
- > Fujitsu_Fast Mode: For Fujitsu tag fast mode.



cla	IDy	Inventory Diotk	Data MFC	(d. turb	15693 Option:
ADVANCE	RAFID SOLUTIONS			Get UID	Normal
Connect		Block Count:	Size (Bytes):	Read All	Option Flag Enable
Type: US	B 👻		From: To:	Write	Fujitsu_Fast Mode Secure
Port: 0	•				Secure
Baudrate:	-				Len: 🔘 32 bits
Status Cor	mected				🔘 64 bits
Connect	Disconnect				PWD
Model 1					
Read Tag Type					
Read Type: 🛛 👿] ISO 15693				
] ISO 14443A				
] ISO 14443B				
E] FeliCa				
Version					
1.5 07/31/2008	21:59:07	5			





ClarIDy HF RFID-NFC Demo	Inventory Block Data NFC	
Connect Type: USB	UID: ISO15693 : E004010014A30865 Get UID Block Count: Size (Bytes): Read All From: To: Write	-15693 Option: Normal Option Flag Enable Fujitsu_Fast Mode Secure
Port: 0 Baudrate: Status Connected Connect Disconnect Model 1		Secure Len: O 32 bits O 64 bits PWD
Read Tag Type Read Type: 🕡 ISO 15693 📄 ISO 14443A 📄 ISO 14443B 📄 FeliCa		
Version 1.5 07/31/2008 21:59:07		



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Read Block Data

After the Tag UID is identified, you can click the "Read All" button to retrieve all block data in the tag's memory, see figure 16. If the system pops up the dialog as figure 17, suppose the tag information could not be accessed properly, enter the "Block Count" such as 27, and "Size (Bytes)" such as 4 for the ISO 15693 tag and click "Read All" again. If the error message still occurred, reduce the "Block Count" and try again.

	iventory	Block	k Data NF(2				_	15000 0 1
ADVANCED AFID SOLUTIONS	UID:	180156	93 : E00401	0014A3086	5 -	Get	UID		 Normal
Connect	Block	Count:	27	Size (Byte	is): 4	Rea	ad All		Option Flag Enable
Type: USB 🗸			From:		lo:	W	rite		Fujitsu_Fast Mode Secure
Port: 0 🗸		Blk	Data0	Data1	Data2	Data3	Statu	*	Secure
Baudrate:	•	0	0	0 0 0 0	Len: 🔘 32 bits				
Status Connected		1	1	1	1	1	0	=	🔘 64 bits
Connect Disconnect		2	2	2	3	2	0		PWD
		3	3	3	3	3	0	-	
Model I		4	4	4	4	4	0	2	
Read Tag Type		5	5	5	5	5	0	5	
Read Type: V ISO 15693		6	6	6	6	6	0	ŝ	
ISO 14443R		7	7	7	7	7	0	ŝ	
FeliCa		8	8	8	8	8	0	5	
Version		9	9	9	9	9	0	+	
1.5.07/31/2008 21:59:07	•				1	1	+		

Figure 16. Block Data Control (Read All)



Figure 17. Read all block data from the tag's memory.



➢ Write Block Data

After retrieving the data from the tag's memory, user can change the contents with the "Write" function. You can change the block data values in the grid cells, input the "From" & "To" values (means: from block-3 to block-3) and click the "Write" button to write the new values into the tag's memory, see figure 18.

- day ID.	Invento	ry Bloc	k Data NF	C					
CLOILDY ADVANCED HIPD SOLUTIONS	UID:	ISO156	593 : E00401	10014A3086	55 🗸	Get	UID		15693 Option: Normal
Connect	Bloc	k Count:	27	Size (Byte	es): 4	Rea	ad All		Option Flag Enable
Type: USB 👻			From:	3	Io: 3	W	rite		Fujitsu_Fast Mode Secure
Port: 0 🗸		Blk	DataO	Data1	Data2	Data3	Statu	*	Secure
Baudrate: 🖵 🖵		0	0	0	0	0	0		Len: 🔘 32 bits
Status Connected		1	1	1	1	1	0	E	🔘 64 bits
Connect Disconnect		2	2	2	2	2	0		PWD
()	1	3	3	3	2	3	0		
Model I		4	4	4	4	4	0	8	
Read Tag Type		5	5	5	5	5	0	8	
Read Type: V ISO 15693		6	6	6	6	6	0	2	
ISO 14443R		7	7	7	7	7	0	2	
FeliCa		8	8	8	8	8	0	8	
Vanian		9	9	9	9	9	0		
1 5 07/21/2000 21-50-07		-				1	-	-	

Figure 18. Update data of block-3 by "Write" function.

3.4 NFC Control

To do the NFC control, there should have two ClarIDy HF RFID Readers. Execute two "ClarIDy HF Demo" programs. Connect both of them by "Port" 0 and "Port" 1 with "USB" Type respectively. Specify one ClarIDy HF RFID Reader to do the "Send" process as figure 19 and the other to do the "Receive" process as figure 20. Define the "FilePath" on the "Receive" side and click "Receive" button for receiving. Define the "FileName" on the "Send" side and click "Send" to start sending file data.



ClarIDy HF RFID-NFC Demo		
Connect Type: USB Port: 0 Baudrate: Status Status Connect Model 1 Read Tag Type Read Type: ISO 15693 ISO 14443A ISO 14443B FeliCa	Inventery Block Data NFC Send FileName c:\claridy.jpg Send Receive FilePath c: FileName Receive Receive	
Version 1.5 07/31/2008 21:59:07		



ClarIDy HF RFID-NFC Demo	2	
Connect Type: USB Port: 1 Baudrate: Status Connected Connect Disconnect Model 1	Inventory Block Data NFC Send FileName c: Send Receive FilePath f: FileName	
Read Tag Type Read Type: ✓ ISO 15693 □ ISO 14443A □ ISO 14443B □ ISO 14443B □ FeliCa Version 1.5 07/31/2008 21:59:07	Receive	

Figure 20. NFC Control on Receive Side.

If the file data was sent successfully, the transfer status will show "Send Success" on the Send 18/19 © Copyright 2008 ClarIDy Solutions, Inc. All rights reserved.



side. If the file type is "jpg" and receiving successfully, the transfer status will show "Receive Success", and will display the received image on the Receive side, figure 21.

ClarlDy HF RFID-NFC Demo	ClarIDy HF RFID-NFC Demo	
Imperatory Block Data NFC Receive Stocess Block Bata NFC Receive Stocess File Rene Ft-Instructure Isto 14435A Isto 14435A Isto 14435A Isto 14435A Pelica Version 1.5 07/31/2008 21:59 07	Inventory Elock Data NPC Connect Type: USB NPC Port: 0 NPC Send Bankne: Oxomethe Send Send Connect Disconnect Send Send Model 1 Send Send Read Tag Type ISO 144438 Felica ISO 144438 Felica Receive Version 1 507/51/2008 21 59 07 Send	

Figure 21. NFC Control to display image file.

3.5 Disconnect Control

Click "Disconnect" button to close the reader connection and USB communication, see figure 22. The "Disconnect" button will be disabled and the "Connect" button will be enabled after then.

1.10	Inventory Block Data	NFC		
CLARIDY Advanced AFID Solutions	Inventory	Stop	Clear	
Connect				
Type: USB 🗸				
Port: 0 🗸				
Baudrate:				
Status Disconnected				
Connect Disconnect				
Model				
lead Tag Type				
Read Type: 👿 ISO 15693				
📝 ISO 14443A				
📝 ISO 14443B				
🔽 FeliCa				
resion				



Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses

and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1 This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.